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Astragalus and its segregates as represented in Colorado

PER AXEL RYDBERG

Linnaeus had two genera, *Astragalus* and *Phaca*, the former with a 2-celled, coriaceous or membranous pod and the latter with a 1-celled, papery pod. As more species have become known these characters do not hold, as there are many species which have the pods partly 2-celled, and the texture of both the 1-celled and 2-celled pods varies. The only reasonable ways to treat these two genera, are to merge them into one or to divide them into several. The latter was tried by Torrey and Gray in their flora. When still more species became known, Dr. Gray saw that he had to propose a number of genera in order to be consistent, gave the method up, and merged all the species into *Astragalus*. He was followed by Dr. Watson. In the Old World the segregation was begun by Medicus, and continued by Opiz, Fourreau and Steven. The latter proposed not less than 24 new genera. It seems that these should cover all the forms that have been included in *Astragalus*, but this is not the case. In the Old World, the completely 2-celled series is best represented, but in America the 1-celled or incompletely 2-celled forms are predominant. The segregation into several genera was renewed in Dr. Britton's Manual and carried somewhat further in Dr. Small's. The Colorado genera and species may be disposed as follows :

Key to the Genera

- Leaves pinnate or unifoliolate.
  - Pods 2-celled, with a perfect partition.
    - Pods fleshy, indehiscent or very tardily dehiscent. 1. GEOPRUMNON.
    - Pods membranous, leathery or woody, dehiscent.
      - Pods not inflated.
        - Pods ovoid or oblong, rarely almost didymous, terete or flattened vertically, leathery or woody. 2. ASTRAGALUS.
        - Pods linear, more or less flattened laterally, membranous. 3. HAMOSA.
      - Pods strongly inflated, papery. 4. CYSTIUM.
  - Pods 1-celled, the partition, if any, rudimentary.
    - Lower suture strongly intruded, making the pod sagittate or obcordate in cross-section ; pods membranous, rarely leathery. 5. TIUM.

Lower suture not intruded or merely slightly so; pods in the latter case woody.

Pods strongly inflated, papery. 14. PHACA.

Pods not inflated, or slightly so, membranous to woody.

Pods with a partial partition, formed by the inflexion of the lower suture.

Pods membranous. 6. ATELOPHRAGMA.

Pods woody.

Pods stipitate; leaves unifoliolate. 7. JONESIELLA.

Pods sessile; leaves pinnate.

Calyx-tube short, campanulate, equaling or shorter than the lobes; tall glabrous plants. 8. PHACOPSIS.

Calyx-tube cylindrical, longer than the lobes; low, cespitose, cinerous or villous plants. 9. XYLOPHACOS.

Pods without a vestige of a partition.

Pods not with two grooves on the upper side (or, if slightly grooved, sessile).

Pods with a fleshy epicarp, in fruit cross-ribbed; leaflets obscurely articulated to the rachis, fleshy, narrow. 10. CTENOPHYLLUM.

Pods without fleshy epicarp; leaflets distinctly articulated to the rachis.

Pods woody or at least leathery, flattened or slightly intruded on the lower side.

Calyx cylindrical; flowers large; plant mostly low and cespitose. 9. XYLOPHACOS.

Calyx campanulate; flowers small.

Corolla yellow; calyx-lobes linear-lanceolate, equaling the tube; stipules united; stem low. 12. CNEMIDOPHACOS.

Corolla purple; calyx-lobes triangular, much shorter than the tube; stipules free or nearly so; stem tall and slender. 11. MICROPHACOS.

Pods membranous, usually more or less flattened laterally, with both sutures prominent.

Leaves spinulose-tipped; pods 1–2-seeded. 15. KENTROPHYTA.

Leaves not spinulose-tipped; pods several- to many-seeded. 16. HOMALOBUS.

Pods with two grooves on the upper side, stipitate. 13. DIHOLCOS.

Leaves digitately trifoliate. 17. OROPHACA.

1. GEOPRUMNON Rydb.; Small, Fl. SE. U. S. 615. 1903.

Besides by the type, *G. crassicarpum* (Nutt.) Rydb., the genus is represented by:

Geoprumnon succulentum (Richardson) Rydb.
Astragalus succulentus Richardson, Franklin Journey 746. 1823.
Astragalus prunifer Rydb. Mem. N. Y. Bot. Gard. **1**: 239. 1900.

2. ASTRAGALUS L. Sp. Pl. 755. 1753.

As the type, I regard *A. christianus* L., which was an article of food in the desert regions of Syria and the Holy Land. The genus is represented in Colorado by: *A. mollissimus* Torr., *A. Bigelowii* A. Gray, *A. anisus* Jones, *A. canadensis* L., *A. coloradensis* Rydb., *A. nitidus* Dougl. (*A. adsurgens* Hook.; not Pall.), *A. sulphurescens* Rydb., *A. virgultatus* Sheld. and *A. goniatus* Nutt.

3. HAMOSA Medic. Vorles. Churpf. Phys. Ges. 2: 376. 1787.

The type of this genus was *Astragalus hamosus* L. To it belongs, beside *H. Nuttalliana* (DC.) Rydb. and *H. leptocarpa* (T. & G.) Rydb. already named, also the following:

Hamosa scaposa (A. Gray) Rydb.

Astraglus scaposus A. Gray Proc. Am. Acad. **13**: 366. 1878.

4. CYSTIUM Stev. Bull. Soc. Nat. Mosc. 4: 268. 1832.

This genus was based on *Astragalus Cicer* L., *A. Pallasii* Sprengel and *A. physodes* L. Congeneric with these are:

Cystium diphysum (A. Gray) Rydb.
Astragalus diphysus A. Gray, Pl. Fendl. 34. 1849.
Cystium ineptum (A. Gray) Rydb.
Astragalus inceptus A. Gray, Proc. Am. Acad. **6**: 525. 1865.

5. TIUM Medic. Vorles. Churpf. Phys. Ges. 2: 373. 1787.

This was based on *Astragalus sulcatus* L. The typical Colorado species of this genus are:

Tium Drummondii (Dougl.) Rydb.
Astragalus Drummondii Dougl.; Hook. Fl. Bor. Am. **1**: 153. 1831.
Tium racemosum (Pursh) Rydb.
Astragalus racemosus Pursh, Fl. Am. Sept. 740. 1814.
Tium scopulorum (Porter) Rydb.
Astragalus scopulorum Porter, in Porter & Coult. Syn. Fl. Colo. 24. 1874.

I refer to it also the following, which although not closely related to the type fit better in this genus than in any other:

Tium alpinum (L.) Rydb.
Astragalus alpinus L. Sp. Pl. 760. 1753.

Tium sparsiflorum (A. Gray) Rydb.

Astragalus sparsiflorus A. Gray, Proc. Acad. Phila. **1863**: 60, hyponym. 1863. — Proc. Am. Acad. **6**: 205. 1863.

Tium huministratum (A. Gray) Rydb.

Astragalus huministratus A. Gray, Pl. Wright. **2**: 43. 1843.

Tium desperatum (Jones) Rydb.

Astragalus desperatus Jones, Zoe **2**: 243. 1891.

6. **Atelophragma** Rydb. gen. nov.

Caulescent leafy slender herbs with rootstocks. Stipules nearly free both from each other and from the petioles. Leaves pinnate, usually with numerous leaflets. Inflorescence a spike-like raceme. Calyx short, campanulate; lobes slender, subulate. Corolla white or purplish. Pod membranous or papery, more or less compressed laterally, in the typical species decidedly flattened and stipitate; dorsal suture intruding in the pod and forming a partial partition.

The first species below is to be regarded as the type.

Atelophragma aboriginum (Richardson) Rydb.

Astragalus aboriginorum Richardson, Frankl. Journey 746. 1823.

Atelophragma Macounii Rydb.

Astragalus Macounii Rydb. Mem. N. Y. Bot. Gard. **1**: 243. 1900.

Atelophragma glabriuscula (A. Gray) Rydb.

Astragalus glabriusculus A. Gray, Proc. Am. Acad. **6**: 204. 1863.

The following species, although having sessile and more turgid pods, may be included also in the genus:

Atelophragma elegans (Hook.) Rydb.

Phaca elegans Hook. Fl. Bor. Am. **1**: 144. 1831.

Astragalus oroboides americanus A. Gray, Proc. Am. Acad. **6**: 205. 1863.

Atelophragma Brandegei (Porter) Rydb.

Astragalus Brandegei Porter, in Porter & Coult. Syn. Fl. Colo. 24. 1874.

Atelophragma Shearis Rydb.

Astragalus Shearis Rydb. Bull. Torrey Club **31**: 562. 1904.

7. **Jonesiella** Rydb. gen nov.

Stout perennial with a woody root and simple stems. Leaves unifoliolate, thick and veiny; stipules broadly triangular, thin. Racemes 6–8-flowered, axillary. Calyx cylindric, somewhat gibbous, with triangular teeth. Corolla ochroleucous with a purple spot on the keel. Pod stipitate, coriaceous, elliptic, turgid, partially 2-celled by the inflexion of the upper suture.

Jonesiella asclepiadoides (Jones) Rydb.

Astragalus asclepiadoides Jones, Zoe **2**: 238. 1891.

8. **Phacopsis** Rydb. gen. nov.

Stout erect glabrous perennials, more or less branched at the woody base. Leaves pinnate with numerous leaflets; stipules ovate, almost free. Racemes rather many-flowered; flowers nearly sessile; bracts lanceolate. Calyx campanulate; lobes lanceolate-subulate, nearly equaling the tube, at last with spreading tips. Corolla ochroleucous with purple-tipped keel; banner and wings narrow. Pod oblong-ovate, coriaceous, somewhat inflated, with a more or less distinct partial partition formed by the inflexion of the suture.

The first species is to be regarded as the type.

Phacopsis praelongus (Sheld.) Rydb.

Astragalus procerus A. Gray, Proc. Am. Acad. **13**: 369. 1878. Not *A. procerus* Boiss. & Haussk. 1872.

Astragalus praelongus Sheld. Bull. Geol. & Nat. Hist. Surv. Minn. **9**: 23. 1894.

Phacopsis Pattersoni (A. Gray) Rydb.

Astragalus Pattersoni A. Gray in Brandegee, Bull. U. S. Geol. Surv. Terr. **2**: 235. 1876.

Gray, Watson and Sheldon associated *A. Pattersonii* with *A. Fendleri* and *A. Hallii*, but the pod is practically that of *Xylophacos*, *i. e.*, *A. Shortianus* and its allies, but shorter and more inflated. It has a partial partition, although not so prominent as in the preceding. These two species might have been included in *Xylophacos*, but they have a different habit and different calyx.

9. XYLOPHACOS Rydb.; Small, Fl. SE. U. S. 619. 1903.

Besides the type, *X. Shortianus* (Nutt.) Rydb., and *X. missouriensis* (Nutt.) Rydb., the following are found in Colorado:

Xylophacos vespertinus (Sheld.) Rydb.

Astragalus vespertinus Sheld. Bull. Geol. & Nat. Hist. Surv. Minn. **9**: 150. 1894.

Xylophacos amphioxus (A. Gray) Rydb.

Astragalus amphioxus A. Gray, Proc. Am. Acad. **13**: 366. 1878.

Xylophacos uintensis (Jones) Rydb.

Astragalus uintensis Jones, Proc. Calif. Acad. II. **5**: 670. 1895.

Xylophacos pygmaeus (Nutt.) Rydb.

Phaca pygmaea Nutt.; T. & G. Fl. N. Am. **1**: 349. 1838.
Astragalus chamaeluce A. Gray, Bot. Ives' Rep. 10. 1861.
Astragalus Cicadae Jones, Zoe **4**: 35. 1893.

This is somewhat aberrent from the typical species of *Xylophacos*, as its pod is spongy at maturity.

Xylophacos Parryi (A. Gray) Rydb.

Astragalus Parryi A. Gray, Am. Jour. Sci. II. **33**: 409. 1862.

Also somewhat aberrent on account of its long pod inflexed on both sutures, and in this respect approaching the genus *Holcophacos*.

Xylophacos Purshii (Dougl.) Rydb.

Astragalus Purshii Dougl.; Hook. Fl. Bor. Am. **1**: 152. 1831.

Torrey, Gray, Watson and Sheldon placed this species and its allies in the subgenus *Phaca*, while *Astragalus Shortianus* and its closer relatives were placed in *Astragalus* proper. There is only one character to separate the two groups, viz., the long woolly pubescence on the pods in one and the sparse and usually appressed pubescence in the other. Some of the *A. Purshii* relatives have the sutures just as much inflexed as any of the other group. The habit, calyx, etc., are practically the same in both.

Xylophacos Newberryi (A. Gray) Rydb.

Astragalus Newberryi A. Gray, Proc. Am. Acad. **12**: 55. 1876.

Watson placed this in the subgenus *Phaca*, in the same section as *A. Fendleri*, *A. Hallii* and *A. flexuosus*. Scarcely a worse place could have been chosen. The structure of the pod and its pubescence associate it with the preceding and its allies, while the habit is more like a dwarf form of the *A. Shortianus* group.

10. **Ctenophyllum** Rydb. gen. nov.

Stout perennials with often several stems rising from the same root and more or less stoloniferous. Leaves pinnate, with 11–19 linear to filiform leaflets, which are very indistinctly jointed to the rachis; stipules ovate, free from the petioles, but (especially the lower) united back of the stem. Peduncles usually equaling the leaves; raceme short. Calyx cylindro-campanulate, very gibbous at the base on the upper side. Corolla ochroleucous, with narrow petals; keel almost straight. Pod oblong, terete, coriaceous with a subfleshy epicarp, in age cross-wrinkled, with thick and prominent sutures, neither of which is inflexed.

Ctenophyllum pectinatum (Hook.) Rydb.

Phaca pectinata Hook. Fl. Bor. Am. **1**: 141. 1831.

Astragalus pectinatus Dougl.; Hook. *loc. cit.* 142, as a synonym.

11. **Microphacos** Rydb. gen. nov.

Subcinereous perennials with very slender stems. Leaves pinnate with 11–17 linear to oblong leaflets; stipules very broad, triangular, free from the petioles and only the lower more or less united with each other. Racemes many-flowered. Calyx short-campanulate, about 2 mm. long, with very short and broad teeth. Corolla purple, 5–6 mm. long, all petals strongly curved. Pod 6–8 mm. long, coriaceous, cross-wrinkled, wholly 1-celled, 6–7-ovuled, boat-shaped, *i. e.*, lower suture prominent, strongly curved, upper suture nearly straight or curved upwards, flat or slightly sulcate.

The first species is to be regarded as the type.

Microphacos gracilis (Nutt.) Rydb.

Astragalus gracilis Nutt. Gen. **2**: 100. 1818.

Microphacos microlobus (A. Gray) Rydb.

Astragalus microlobus A. Gray, Proc. Am. Acad. **6**: 203. 1863.

12. **Cnemidophacos** Rydb. gen. nov.

Cespitose perennials with a woody caudex; stems short, 1 2 dm. high. Leaves pinnate with many narrow leaflets, cinereous; stipules slightly united with the petioles, but almost wholly united behind the stem forming a sheath. Racemes strict and many-flowered. Calyx deeply campanulate; lobes linear-lanceolate, equaling the tube. Corolla yellow, with narrow petals. Pod coriaceous, oblong-ovoid, rounded below, somewhat depressed above, but with a very sharp suture and hence somewhat 2-grooved.

Cnemidophacos flavus (Nutt.) Rydb.

Astragalus flavus Nutt. in T. & G. Fl. N. Am. **1**: 335. 1838.

Tragacantha flaviflora Kuntze, Rev. Gen. Pl. **2**: 941. 1891.

Astragalus flaviflorus Sheld. Bull. Geol. & Nat. Hist. Surv. Minn. **9**: 158. 1894.

This has been placed in the *Eu-Astragalus* division, next after *A. racemosus*, and in a section together with *A. humistratus* and *A. oreganus*, to which it has no relationship. The only similarity is the conspicuousness of the stipules.

13. **Diholcos** Rydb. gen. nov.

Stout erect perennials often forming clumps. Leaves pinnate with many thick leaflets; stipules lanceolate, free. Raceme many-flowered, dense, spike-like; bracts lance-subulate. Calyx campanulate, gibbous at the base on the upper side; teeth subulate-setaceous. Corolla purple, white or ochroleucous; petals only moderately curved and blunt. Pod coriaceous, stipitate, oblong, straight, rounded on the lower suture, deeply 2-grooved above and with a prominent upper suture, 1-celled.

The first species is to be regarded as the type.

Diholcos bisulcatus (Hook.) Rydb.

Phaca bisulcata Hook. Fl. Bor. Am. **1**: 145. 1831.

Astragalus bisulcatus A. Gray, Pac. R. R. Rep. **12**: 42. 1860.

Diholcos decalvans (Gandoger) Rydb.

Astragalus bisulcatus decalvans Gandoger, Bull. Soc. Bot. France **48**: xv. 1902.

Diholcos Haydenianus (A. Gray) Rydb.

Astragalus Haydenianus A. Gray in Brandegee, Bull. U. S. Geol. Surv. Terr. **2**: 235. 1876.

14. PHACA L. Sp. Pl. 755. 1753.

The Colorado species are as follows: *Phaca longifolia* (Pursh) Nutt., *P. picta* A. Gray, *P. Candolleana* H. B. K., *P. pauciflora* Nutt., and:

Phaca Eastwoodiae (Jones) Rydb.

Astragalus Preussii sulcatus Jones, Zoe **4**: 37. 1893.

Astragalus Eastwoodiae Jones, Zoe **4**: 368. 1894.

Phaca artipes (A. Gray) Rydb.

Astragalus artipes A. Gray, Proc. Am. Acad. **13**: 370. 1878.

Phaca cerussata (Sheld.) Rydb.

Astragalus cerussatus Sheld. Bull. Geol. & Nat. Hist. Surv. Minn. **9**: 139. 1894.

Phaca Bodinii (Sheld.) Rydb.

Astragalus Bodinii Sheld. Bull. Geol. & Nat. Hist. Surv. Minn. **9**: 122. 1894.

Sheldon placed this among the *Homalobi* and described the pod as being flat, but all specimens with well-developed fruit show that the species is a typical *Phaca.*

Phaca humillima (A. Gray) Rydb.

Astragalus humillimus A. Gray, in Brandegee, Bull. U. S. Geol. Surv. Terr. **2**: 235. 1876.

Phaca elatiocarpa (Sheld.) Rydb.

Astragalus lotiflorus brachypus A. Gray, Proc. Am. Acad. **6**: 209. 1863.

Astragalus elatiocarpus Sheld. Bull. Geol. & Nat. Hist. Surv. Minn. **9**: 20. 1894.

Phaca Wetherillii (Jones) Rydb.

Astragalus Wetherillii Jones, Zoe **4**: 34. 1893.

15. KENTROPHYTA Nutt. in T. & G. Fl. N. Am. **1**: 353. 1838.

Besides the *K. viridis* Nutt., the following are found in Colorado:

Kentrophyta impensa (Sheld.) Rydb.

Astragalus Kentrophyta elatus S. Wats. Bot. King's Expl. 77. 1871. Not *A. elatus* Boiss. & Bal. 1849.

Astragalus viridis impensus Sheld. Bull. Geol. & Nat. Hist. Surv. Minn. **9**: 118. 1894.

Kentrophyta Wolfii Rydb.

Homalobus Wolfii Rydb. Bull. Torrey Club **31**: 562. 1904.

Kentrophyta aculeata (A. Nelson) Rydb.

Astragalus tegetarius implexus Canby, in Porter & Coult Colo. Add. (no page-number) 1874.

Astragalus aculeatus A. Nelson, Bull. Torrey Club **26**: 10. 1899.

16. HOMALOBUS Nutt. in T. & G. Fl. N. Am. **1**: 350. 1838.

The following are the Colorado species: *H. caespitosus* Nutt., *H. wingatanus* (S. Wats.) Rydb.; *H. Clementis* Rydb., *H. tenellus* (Pursh) Britton, *H. campestris* Nutt., *H. decurrens* Rydb., *H. hylophilus* Rydb., *H. tenuifolius* Nutt. and *H. decumbens* Nutt. Also:

Homalobus grallator (S. Wats.) Rydb.

Astragalus grallator S. Wats. Zoe **3**: 52. 1892.

Homalobus acerbus (Sheld.) Rydb.

Astragalus acerbus Sheld. Bull. Geol. & Nat. Hist. Surv. Minn. **9**: 123. 1894.

Homalobus junciformis (A. Nelson) Rydb.

Astragalus junciformis A. Nelson, Bull. Torrey Club **26**: 9. 1899.

Homalobus camporum Rydb. sp. nov.

A cespitose perennial; stems erect, 1–2 dm. high, grayish-strigose; leaves 3–5 cm. long; leaflets 9–15, linear to nearly filiform, rarely oblong, 4–10 mm. long, 0.5–2 mm. wide, silvery-canescent; stipules ovate, somewhat scarious, strigose; raceme 5–10 cm. long; flowers 7–15; bracts subulate; calyx campanulate, white-silky, about 3 mm. long; lobes lance-subulate, about 2/3 as long as the tube; banner about 6 mm. long, white or ochroleucous with purple veins; keel with a narrow purple tip; pod linear, 12–18 mm. long, 2–3 mm. wide, compressed, straight, strigose.

This is rather common on the plains and hills from Alberta to Colorado and Utah and has been known as *Astragalus campestris*, *A. decumbens* and *A. tenuifolius* Nutt. The first of these is a taller plant 3–4 dm. high, more simple; its pod is 2–2.5 cm. long and its keel is broad and blunt. *H. decumbens* has an arcuate pod and in *H. tenuifolius* the calyx-teeth are triangular and only 1/4–1/3 as long as the tube. As the type may be assigned:

WYOMING: Bush Ranch, Sweetwater Co., June 10, 1900, *Aven Nelson 7085*.

Homalobus flexuosus (Hook.) Rydb.

Phaca flexuosa Hook. Fl. Bor. Am. **1**: 141. 1831.

Astragalus flexuosus Dougl.; Hook. *loc. cit.*, as a synonym.

This and the following differ from the typical species of *Homalobus* in having almost terete instead of flattened pods. The pods are, however, of the same texture, wholly one-celled and with prominent sutures, and the plants are of the same general habit.

Homalobus Hallii (A. Gray) Rydb.

Astragalus Hallii A. Gray, Proc. Am. Acad. **6**: 224. 1863.

Homalobus Fendleri (A. Gray) Rydb.

Astragalus Fendleri A. Gray, Pl. Wright. **2**: 44. 1853.

Homalobus proximus Rydb. sp. nov.

Cespitose perennial, related to *H. flexuosus*; stems erect, 2–3 dm. high, grayish-strigose; leaves 4–6 cm. long; stipules triangular-ovate, glabrous; leaflets 5–11, linear or linear-oblong, obtuse, 5–11 mm. long, 1–2 mm. wide, grayish-strigose; racemes erect, 5–10 cm. long; calyx about 2.5 mm. long, strigose; corolla 4–5 mm. long, white or ochroleucous; pod oblong-linear, terete, glabrous, about 12 mm. long and 3 mm. in diameter, glabrous, acute at the apex, abruptly contracted into a short stipe about equaling the calyx.

COLORADO: Arboles, June, 1899, *C. F. Baker 421.*

Homalobus Salidae Rydb. sp. nov.

Decumbent or ascending perennial; stem 3 dm. or more long; leaves 5–7 cm. long; stipules triangular-ovate, strigose; leaflets 15–21, oblong-oblanceolate to narrowly linear, 8–15 mm. long, 0.5–3 mm. wide, strigose; racemes 10–15 cm. long, lax; pedicels 5 mm. long; bracts minute; calyx campanulate, strigose and slightly black-hairy, about 3 mm. long; teeth short, triangular; corolla about 8 mm. long, purple-veined; pod narrowly linear-oblanceolate, terete or nearly so, 2–2.5 cm. long, 2 mm. in diameter, finely strigose, very acute at the apex and gradually tapering into a short stipe below.

COLORADO: Salida, August 3, 1896, *C. L. Shear 3468.*

Homalobus macrocarpus (A. Gray) Rydb.

Phaca macrocarpa A. Gray, Pl. Fendl. 36. 1849.

Astragalus lonchocarpus Torr. Pac. R. R. Rep. **4**: 80. 1856.

This species is doubtfully referred to *Homalobus*. It may represent a monotypic genus of its own. The relationship is however much closer to *Homalobus* than to *Phaca*, with which it has been associated.

17. OROPHACA (T. & G.) Britton, Man. 555. 1901.

Besides *O. sericea* (Nutt.) Britton, the following are found in Colorado:

Orophaca tridactylica (A. Gray) Rydb.
Astragalus tridactylicus A. Gray, Proc. Am. Acad. **6**: 527. 1866.
Orophaca aretioides (Jones) Rydb.
Astragalus sericoleucus aretioides Jones, Cont. West. Bot. **8**: 13. 1898.

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